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PROCEEDINGS OF THE CLUB

FEBRUARY 13, 1906

The meeting was called to order at the American Museum of Natural History by the secretary, at 8:30 o'clock. Owing to the absence of the president, Dr. N. L. Britton was called to the chair. Twenty-three persons were present.

After the minutes of January 31 were read and approved, the following names were presented for membership: Professor Geo. F. Atkinson, Cornell University, Ithaca, N. Y.; Frederick S. Beattie, Brown University, Providence, R. I.; F. M. Bruggerhof, P. O. Box 1449, N. Y. City; Mr. H. Dautun, 139 Franklin St., Jersey City, N. J.; Dr. Clayton D. Fretz, Sellersville, Pa.; Dr. William J. Gies, 437 West 59th St., N. Y. City; C. C. Hanmer, L. Box 96, East Hartford, Conn.; Mrs. Richard March Hoe, 11 East 71st St., N. Y. City; Lewis H. Lapham, 15 West 56th St., N. Y. City; Miss Sarah A. Robinson, 289 East Houston St., N. Y. City; Nelson Smith, 151 West 48th St., N. Y. City; Mason A. Stone, 244 Central Park West, N. Y. City; Mr. C. A. Weatherby, East Hartford, Conn.

A paper by Dr. Arthur M. Edwards, on the "Origin of the Bacillaria," was read by title.

On the vote of the Club, the secretary cast the ballot of the Club for the election to membership of the persons whose names were proposed for membership as above.

The paper of the evening was an illustrated lecture by Mr. George V. Nash, on the "General Botanical Features of Orchids."

There seems to be a general misconception among many as to just what an orchid is. Any plant which grows on a tree, or has some peculiar feature is, without hesitation, called an orchid. This mistake is frequently made in regard to the pitcher plants, *Nepenthes*, or to the tail-flowers, *Anthurium*. In order more clearly to define the structure of the orchid flower, a large flower of the genus *Cattleya* was illustrated on the screen. The uniting in one organ, called the *column*, of the stamens and pistils, serves at once to distinguish this family from all related ones. The

diandrous and monandrous forms of this column were described and illustrated with lantern slides, as were the other features of the family. The two kinds of pollinia were explained, that which develops appendages at the base, and that which is without appendages, or develops them at the apex, the former associated with the persistent anthers, the latter with the deciduous anther. Attention was called to the thickened stems of most orchids. In some the stem is very short and much enlarged. Such stems are known as *pseudobulbs*. *Oncidium* and *Odontoglossum* are examples of this sort. In others the entire stem is thickened, as is the case in *Cattleya* and *Dendrobium*. The lateral and terminal forms of inflorescence were described, the former arising from the base of the pseudobulb, the latter from the apex. The veneration of the leaves, whether convolute or conduplicate, was illustrated. The manner of growth, whether limited or unlimited, was indicated: the limited in such genera as *Epidendron*, *Oncidium*, *Odontoglossum*, *Masdevallia*, and in fact the greater part of the orchids; the other, the unlimited, in such genera as *Vanilla* and *Angraecum*, in which the axis ascends continuously.

The latest comprehensive treatment of this interesting family is by Pfitzer, in Engler and Prantl's *Natürlichen Pflanzenfamilien*. In his classification he utilized the characters and habits of growth referred to above.

The orchid family is a large one, embracing some 6,000 or 7,000 species, mostly distributed in tropical regions. Comparatively few are found in the warm temperate, and almost none in the cold portions of the temperate zone. The center of their distribution in the Old World is in India and the Malay region, such genera as *Dendrobium*, *Vanda*, and *Bulbophyllum* representing them in that region. In the New World they are found in the greatest numbers in Brazil and northern South America. Such genera as *Cattleya*, *Laelia*, and *Masdevallia* illustrate these. In the United States there are about 150 species, representing 44 genera. These are mainly terrestrial, the comparatively few epiphytes being confined to Florida and the Gulf States.

By far the greater part of the orchids grow in hot humid regions, where they are found most exclusively growing on trees,

or epiphytic. The terrestrial species in the tropics are relatively few. The epiphytes usually have thick fleshy leaves, and these and their thick stems serve as storage organs, for their water supply is precarious. While it is true that most orchids like humid conditions, this is not always the case. During an exploration of the Inaguas, which are extremely xerophytic, great masses of *Epidendrons* were found growing on the bases of the small shrubs or trees, or on the hot limestone rock; and to emphasize this desert condition, was a species of *Agave* growing among them. They seemed to flourish, for the pseudobulbs were strong and vigorous.

Nearly all tropical orchids are epiphytic, while in temperate regions they are terrestrial, the soil around their roots protecting them from the extreme cold of winter. As a rule terrestrial orchids have thin leaves, for their water supply is not so limited as is the case with epiphytic orchids.

In distribution orchids are very local. Few genera are common to both the Old World and the New, and when they are common to both, the distribution is a zonal one. The genus *Cypripedium*, as at one time understood, was a supposed exception to this. Recent authors, however, basing their conclusions upon well-defined structural differences in the flowers, have divided this, at one time cosmopolitan genus, into four genera, each of the four genera with a well-defined geographical distribution. We have now, instead of the one big genus, the following :

Selinipedium, New World, with 3 species, known only from Central America to Brazil.

Cypripedium, Old World and New, but zonal in distribution, with 28 species, north temperate.

Phragmipedium, Old World, with 11 species, in tropical America only.

Paphiopedilum, Old World, with 46 species, tropical Asia, Malaysia, Philippines, etc.

As genera typical of a zonal distribution, there were mentioned : *Cypripedium*, *Pogonia*, and *Limodorum*. Among the genera peculiar to the New World are : *Masdevallia*, *Pleurothallis*, *Epi-*

denison, Cattleya, Laelia, Lycaste, Maxillaria, Odontoglossum, Miltonia, Oncidium, and Dichaea.

Among those confined to the Old World, are : *Thunia, Coelogyne, Plcione, Ansellia, Phajus, Dendrobium, Eria, Bulbophyllum, Cymbidium, Phalaenopsis, Vanda, Angraecum, and Aerides.*

The different features were illustrated with lantern slides, many of them colored. The latter were the work of Mrs. Van Brunt, and were kindly loaned for the occasion by her.

Alluding to Mr. Nash's discussion of the satisfactory breaking up of the old genus *Cypripedium* into four genera, and the restriction of *Cypripedium* to its type species and immediate relatives, having a well defined zonal distribution, Dr. Britton remarked upon the wide application of this principle in the progressive study of plants and animals, causing the recognition of very many more genera than were believed to exist by most botanical and zoölogical students in the last century.

The vastly greater number of species now known, and their more critical comparative study in the field and in collections, as well as the more exact understanding of long-recognized species, shows that the number of homogeneous groups which we call genera, existing in nature, is larger than previously supposed. The genus *Habenaria* has recently been subdivided into several genera, and this subdivision has been a distinct advance in the taxonomy of orchids.

The Club adjourned at 9:30 o'clock.

C. STUART GAGER,
Secretary.

FEBRUARY 28, 1906

The Club met at the Museum Building of the New York Botanical Garden, at 3:30 o'clock. Vice-President L. M. Underwood presided, and 21 persons were in attendance.

The minutes of February 13 were read and approved, and the following names presented for membership :

Richard H. Allen, Chatham, New Jersey ; Dr. T. J. W. Burgess, Montreal, Canada, Box 2381 ; H. Hapeman, Minden, Nebr. ; Miss Caroline Harriot, Whitestone, L. I. ; Dr. A. H. MacKay, Dartmouth, Nova Scotia ; S. Mendelson Meehan, Mt.

Airy, Philadelphia, Pa. ; Lycurgus R. Moyer, Montevideo, Minn. ; O. M. Oleson, Fort Dodge, Iowa ; S. B. Parish, San Bernardino, Cal. ; Chas. C. Van Loan, 407 West 47th St., N. Y. City ; David R. Sumstine, 508 Elliott St., Wilksburg, Pa. ; Charles Fay Wheeler, Prince George Co., Lanham. Md.

On a vote of the Club, the secretary cast the ballot of the club for the persons above proposed for membership.

The first paper on the scientific program was by Dr. W. A. Murrill, on "Remarks on a Destructive Disease of the Chestnut Trees."

The disease in question was discovered last summer, by Mr. H. W. Merckel in the New York Zoölogical Park, where most of the chestnut trees were found to be affected and many of them injured beyond hope of recovery. Besides being abundant about New York City, it is known to occur also in New Jersey, Maryland and Virginia and its presence is suspected in Georgia and Alabama.

The disease is apparently unknown to all our mycologists and the fungus appears to be undescribed. By cultures, inoculations and field studies, its morphology and life history have already been quite well determined ; but no treatment beyond clean culture can as yet be suggested.

The paper was illustrated by specimens, photographs, drawings and cultures.

The second paper was entitled "*Crataegus* in Dutchess County, N. Y.," and was by W. W. Eggleston.

Many herbarium sheets were shown. The paper is published in the present issue of *TORREYA*. It was briefly discussed by Professor Underwood.

The last paper by Miss Alice A. Knox was entitled, "A Cucurbitaceous Stem of the Desert."

Ibervillea Sonorae, an American desert species of the Cucurbitaceae is noteworthy for its enormously thickened perennial stem, which frequently reaches a diameter of 40 cm. This stem can exist an indefinite time without water, sending up yearly long flexible shoots. Its anatomy shows in general the ordinary stem structure of Cucurbitaceous plants. There is a double ring of

bicollateral bundles, a ring of stereome, and collenchyma in the cortex. Peculiarities of its histology are the irregular number of bundles, the absence of interfascicular cambium, and the great breadth of the medullary rays. An active cambium is found within as well as without the hadrome regions. Scattered sieve-tubes occur in the periphery and an elaborate system of secretory canals adjoins the leptome regions ramifying also through pericycle and cortex. In the other stems supernumerary leptome bundles develop, often accompanied by pitted ducts which are cut off from the primary hadrome by the renewed activity of the wood parenchyma. A large periderm gradually forms, its cells finally encrusted with calcium carbonate.

It is difficult to trace the age of these tubers as the medullary rays are not formed yearly, but judging by the increase at the base of old shoots and by the development of young plants, they may sometimes be the product of half a century of growth.

The paper was illustrated by drawings and living specimens.

The paper was discussed by Dr. Rydberg, who mentioned the root characters, and geographical range of *Cucurbita foetidissima*.

C. STUART GAGER,

Secretary.

MARCH 13, 1906

The Club met in the American Museum of Natural History at 8 P. M. President Rusby was in the chair and 13 persons were present.

After the minutes of the meeting of February 28, were read and approved the following names were presented for membership :

Mr. Ellsworth Bethel, 270 S. Marion St., Denver, Colo.; Mr. T. J. Fitzpatrick, Iowa City, Iowa (Box 497); Mrs. Sarah B. Hadley, South Canterbury, Conn.; Prof. John M. Holzinger, Winona, Minn.; Mr. Robert K. Miller, 111 and 113 Chamber of Commerce, Baltimore, Md.; Mr. Eugene A. Rau, Bethlehem, Pa.; Mr. Willard A. Stowell, 140 Kent St., Trenton, N. J.; Mr. C. F. Wheeler, U. S. Dept. of Agriculture, Washington, D. C.

President Rusby stated that owing to other duties he would be unable to represent the Club at the coming celebration of the

200th anniversary of the birth of Benjamin Franklin at Philadelphia.

Resignations from the Club were read and accepted from the following persons :

Mr. C. L. Allen, Floral Park, N. Y.; Miss Mary McOuat, 211 West 108th St., N. Y. City; Miss Madeline Pierce, New York Tribune, N. Y. City; Mrs. G. H. Robinson, 339 West 57th St., N. Y. City.

A communication was read from Mr. Ellsworth Bethel, of Denver, Colo., stating that he and Dr. Sturgis were at work on the fungi of Colorado, and would soon publish their first number, listing the Myxomycetes of the state.

President Rusby presented the matter of public recognition by the Club of the coming 10th anniversary of the establishment of the New York Botanical Garden, and the appointment of Dr. Britton as Director-in-Chief and of Professor Underwood as professor of botany in Columbia University.

Motion was made and seconded that a committee be appointed by the chair to make arrangements for such an event. The motion was carried, and the president appointed the following committee :

Miss Vail, Miss Marble, Dr. Murrill, Dr. Curtis, Professor Richards, Dr. MacDougal and Dr. Barnhart.

On motion the secretary cast the vote of the Club, electing to membership the persons whose names were presented as above.

The first paper on the scientific program was by Dr. P. A. Rydberg, entitled "Botanizing in Utah."

The substance of this paper appeared in the Journal of the New York Botanical Garden 6: 158. 1905.

Many herbarium specimens were passed, illustrative of the paper.

The last paper was by Professor E. S. Burgess, on "Biotian Asters."

This was an informal discussion of the Biotian section of the genus *Aster*, accompanying the publication at this time of the author's monograph on the Biotian Asters (constituting Vol. 13 of the Torrey Club's Memoirs) with description and figures of 84

species and 10 subspecies, and with informal descriptions of about 250 less definite forms. The Biotian section of *Aster* is one of the most difficult and variable, and seems particularly active in production of new forms, some other sections of *Aster* being quite stable in comparison. Most of the larger and more conspicuous species, with violet or lavender rays and glandular hairs constitute as a subsection the *Macrophylli*, typified by the well-known *Aster macrophyllus* L. Specimens illustrating the principal species of this subsection were exhibited and compared, and the speaker described the results of his method of continued observation on plant-colonies in unchanged natural habitat, with reference especially to the development of variations, and to distinction between certain changes apparently due to environmental conditions and other changes suggesting origin by mutation.

NEWS ITEMS

Dr. P. A. Rydberg, of the New York Botanical Garden staff, has been devoting three weeks to studies in the United States National Herbarium.

Dr. C. F. Millspaugh, curator of the botanical department of the Field Columbian Museum, Chicago, sailed for Europe in the latter part of March.

Dr. David Griffiths, of the Bureau of Plant Industry, is spending two months in grass and forage-plant investigations in Texas, New Mexico, Arizona, and California.

Fred William Foxworthy (Ph.D., Cornell, 1904) and Albert Francis Blakeslee (Ph.D., Harvard, 1904) have recently been appointed to botanical positions in the service of the Philippine government.

Mr. William R. Maxon, of the United States National Herbarium, sailed from New York on March 31, to spend two months in making botanical collections in Costa Rica in behalf of the New York Botanical Garden.